CLAIMS

1. An apparatus for passing sutures through a surgically divided sternum, comprising:

a handled framework supporting opposing male and female engagement elements; and

an arm which carries said male engagement element; and

a drive assembly and means to impart motion to the male engagement element to thereby penetrate a segment of the divided sternum; and

said handled framework further supporting a perpendicular extension and a seat and means to position a socketed fixture at the undersurface of the divided sternum, whereby said socket or contents therein may be penetrated by the male engagement element; and

the socket of said socketed fixture with means to seat and precisely position said female engagement element with said suture attached thereto.

2. The apparatus of claim one wherein the male engagement element is a straight surgical needle.

3. The apparatus of claim one wherein the female engagement element is preferably a cylindrical device, securely attached to opposing ends of each suture.

4. The female engagement element of claim three being of appropriate size to allow penetration by said straight surgical needle and assure frictional capture of needle therein.

5. Said arm of claim one further carrying a needle guiding device and means to support and guide the straight surgical needle to its target, the female engagement element.

6. Said needle guiding device of claim five, comprising a piston operationally joined to a cylinder in the distal portion of the arm, wherein said piston supports a bore to carry a straight surgical needle, thereby imparting stability and directional control to the needle.

7. The apparatus of claim one, wherein said handled framework comprises a handle member having forward and rearward extremities and said perpendicular extension extending downward from said forward extremity and terminating as an enlarged seat for said socketed fixture.

8. A channel, passing through the handled framework in parallel disposition, but anterior and superior to said perpendicular extension, provides slidable and pivotable attachment means for the arm to the handled framework.

9. The apparatus of claim one, wherein the arm has a series of inclined teeth along one side to operatively engage a pawl, pivotably attached to a lever, which in turn is pivotably attached to the handled framework.

10. The arm of claim eight further supports a handle at its proximal extremity to manually impart slidable or pivotable motion thereto.

11. The lever of claim nine using a spring for biasing means, coacting between the lever and the handle member normally urging the lever to a fully open disposition.

12. The pawl of claim nine, with spring biasing means normally urging the pawl to pivot upward to coact with said inclined teeth, thereby providing means to impart motion to the arm when the lever is taken up by hand.

13. The apparatus of claim one, wherein the socketed fixture comprises a fixed and a slidable member, whereby a fore and aft plane of division between the members bisects the fixtures socket.

14. The members of claim thirteen are operatively joined by means of laterally and medially oriented guidepins and further joined by a threaded channel operatively connected to a knobbed, threaded shaft, providing means for said slidable member to move toward or away from said fixed member, thereby altering the diameter of the socket.

15. The fixed member of claim thirteen having fastening means to said enlarged seat comprising guidepins and bores or other obvious alternatives.

16. The socket of claim thirteen having an upper, proximal extremity and a lower, distal extremity; divided by a narrow gap near said lower distal extremity, thereby allowing passage of the suture while providing a seat for the female engagement element.

17. The straight surgical needle of claim two, absent a threading eyelet, comprising a separate entity from the suture.

18. With male and female engagement elements secured one to the other by friction, a portion of the straight surgical needle remains protruding from the top surface of the sternum, whereby it may be extracted in a retrograde direction by means of the arm or a conventional needle driver, thereby delivering the suture to a desired position at the superficial surface of the sternum.

19. The method of claim eight providing means to pass the opposing end of the suture through the opposing site of the divided sternum.